

# Pohybové ústrojí

---

Pokroky ve výzkumu, diagnostice a terapii

The 20<sup>th</sup> Prague-Lublin-Sydney-St. Petersburg  
Symposium

## **Interdisciplinary approach to growing skeleton 2**

12<sup>th</sup>–16<sup>th</sup> September 2018  
Prague | Czech Republic

Vydává

Společnost pro pojivové tkáně ČLS J. E. Purkyně z.s.  
Odborná společnost ortopedicko-protetická ČLS J. E. Purkyně z.s.  
Ambulantní centrum pro vady pohybového aparátu, s.r.o.

**ročník 25 / 2018 číslo 2 Suppl.**

EMBASE / Excerpta Medica | Bibliographia medica Českoslovaca

ISSN 2336-4777



## Systém výživy kloubů dle výzkumu prof. MUDr. Milana ADAMA, DrSc.

Originální český kolagenní doplněk stravy **GELADRINK®** byl vyvinut na základě výzkumu revmatologa a spoluzakladatele společnosti Orling s.r.o. prof. MUDr. Milana ADAMA, DrSc., člena Akademie věd v New Yorku, oceněného prestižní cenou UNESCO za celoživotní přínos lékařské vědě.

doplněk stravy



**DOPORUČUJÍ**  
*odborné společnosti*



**22 let existence na trhu!**

**GELADRINK® obsahuje:**

- + kolagenní peptidy GELITA®**  
kolagenní bílkovina přispívá k udržování normálních kostí
- + vitamín C**  
přispívá k normální formaci kolagenu pro normální funkci kostí a chrupavek
- + glukosamin a chondroitin sulfáty**  
jsou součástí kloubní chrupavky
- + antioxidanty, MSM a další látky**  
s příznivými nutričními a fyziologickými účinky doplňujícími běžnou stravu a vyživující kosti, chrupavky, klouby a pojivové tkáně

**BEZPLATNÁ LINKA - 800 108 999 - WWW.ORLING.CZ**

Zdravá a vyvážená strava a zdravý životní styl jsou nezbytné. Doporučená denní dávka 12 kapslí nebo jedna odměrka. Užívejte 3 měsíce. Není určeno pro děti do 12 let, těhotné a kojící ženy. Doporučenou denní dávku nepřekračujte.



Society For Connective Tissues CMA J.E. Purkynje & Society for Prosthetics and Orthotics CMA J.E. Purkynje & Czech Society of Biomechanics & Czech Medical Association J.E. Purkynje & Medical University of Lublin & Vincent Pol University in Lublin & Children's Rehabilitation Center of Orthopaedics and Traumatology "Ogonyok", St. Petersburg

invite you to

## THE 20<sup>TH</sup> PRAGUE-LUBLIN-SYDNEY-ST. PETERSBURG SYMPOSIUM

main topic

### INTERDISCIPLINARY APPROACH TO GROWING SKELETON 2

The Symposium will be held in Kromeriz, hotel "Octárna", Czech Republic in September 12–16, 2018

under the auspices of  
of the chairman of the Chamber of Deputies of the Parliament of the Czech Republic  
**Radek Vondracek, MSc**

&

the honorary president of the Czech Medical Association J.E. Purkynje

**Professor Jaroslav Blahos, MD, DSc.**

&

the honorary president of the Society for Connective Tissues CMA J.E. Purkynje

**Professor Josef Hyanek, MD, DSc.**

*The Symposium belongs to education actions integrated into the life training system of physicians according to professional statute No. 16 of the General Medical Council.*



---

## Conclusion

Considering all of the above, the Adams's test seems to be the most accurate test to record a paraspinal muscle activity as compared to other tests carried out.

Asymmetry coefficient analysis during the Adams's test in healthy children showed that normal parameters of asymmetry coefficient ranges from 0.9 to 1.1 by both parameters of the EMG curve (average amplitude and average frequency). Statistical analysis showed that the EMG data obtained from the recording of bioelectrical activity of paraspinal muscles in the lumbar region of the spine during the quiet standing test range significantly from 0.69 to 1.45 by amplitude and from 0.73 to 1.56 by frequency, which may be attributed to the retaining a vertical balance, providing a less stable factor than during the EMG recording in the Adams's test.

A non-invasive EMG method can be applied in the diagnostics of one-sided paraspinal muscle tension occurring in the process of scoliotic transformation.

## ABSTRACT OF PERSPECTIVE ORIGINAL PAPER

### STRUCTURAL ASYMMETRY OF LUMBAR VERTEBRAE AS A RISK FACTOR FOR THE DEVELOPMENTAL OF PARAVERTEBRAL MUSCLE DYSFUNCTION

Kolesnichenko Vera<sup>1</sup>, Golka Gregory<sup>2</sup>, Gresko Igor<sup>3</sup>

1 SI "Sytenko Institute of Spine and Joint Pathology National Academy of Medical Sciences of Ukraine", Kharkov, Ukraine

2 Kharkov National Medical University, Ukraine

3 Lviv National Medical University named after Danila Galitsky, Ukraine

E-mail: veakol@rambler.ru

**Key words:** lumbar vertebrae structural asymmetry, change in muscle interaction, motor control dysfunction.

## Objective

To study the relationship between the lumbar vertebrae structural asymmetry and motor control dysfunction in patients with lumbar disc degeneration diseases.

## Methods

The clinical and radiological study protocols of 30 asymptomatic volunteers (at the age of 20–30 years old, middle-age is  $22.4 \pm 2.6$  years) and 60 patients with lumbar degenerative disc disease (at the age of 20–40, middle-age is 33.4 years) served as the materials for this research. All the examined patients were male. 40 patients were observed in the Vertebrology Clinic of the Sytenko Institute of Spine and Joint Pathology. 20 patients were examined in the Traumatology Clinic of the Kharkov

---

Clinical Hospital for Emergency and First Medical Care named after professor A.I. Meshchaninov. We evaluated the mobility of the spine and hip joints, lumbar-pelvic rhythm, motor control tests for the flexor and extensor muscles of the lumbar-pelvic region.

On the lumbar spondylograms (view in the anterior-posterior and lateral projections, oblique projections in 3/4) and computer tomograms were determined on the three lower lumbar segments: (i) the R1 sign of asymmetry of the posterior support complex elements (the size asymmetry of the transverse and articular processes, the discrepancy between the size and shape of the articular facets, the anomaly of tropism, the spinous processes rotation) and (ii) the R2 sign of degeneration degree (subchondral sclerosis of the vertebral bodies and articular processes, their osteophytes, a decrease of the interbody spaces height, sagittalization of the facet joints).

## **Results and discussion**

The trunk myofixation with predominance of flexion motion patterns was noted in patients with lumbar disc degeneration diseases in 81.7% of cases. A significant predominance of X-ray anatomical signs of R1 ( $p < 0.001$ ) and R2 ( $p < 0.001$ ) in patients compared with volunteers was established. In all the lumbar segments examined, was detected significantly more often the asymmetry of the articular processes ( $p < 0.001$ ), the discongruence of articular facets ( $p < 0.001$ ), the spinous processes rotation ( $p < 0.01$ ) and the transverse processes asymmetry ( $p < 0.05$ ) in patients with the motor control dysfunction of the muscles of the lumbar-pelvic region.

X-ray anatomical asymmetry of the posterior support complex elements (first of all, the asymmetric size of the articular and transverse processes, the spinous processes rotation – the sites of the beginning and attachment of the fibers of the multifidus muscles), accompanied by different length and tone of the right and left muscle bundles. This leads to a change in muscle interaction and potentiates the change in intersegmentary movements with a violation of functional lumbar-pelvic stability. An additional pathomechanical effect may exert asymmetry of the magnitude and tension of the spine short ligaments (capsular, inter- and supraspinous, intertransverse). This situation causes a violation of absorption of torsion loads and tensile loads, which perceives the intervertebral disc and articular capsule at vertical loads and movements of the spine.

## **ABSTRACT OF PERSPECTIVE REVIEW ARTICLE**

### **GROWING SCOLIOTIC SPINE – LIMITS OF CONSERVATIVE TREATMENT AND INDICATION OF SURGICAL TREATMENT.**

Martin Repko, Milan Filipovič

Orthopaedic Dpt., University Hospital Brno, Medical Faculty of Masaryk University Czech Republic

E-mail: repko@seznam.cz

**Key words:** scoliosis, bracing, surgery